Claims

What is claimed is:

1. A system for manufacturing optical fiber, comprising:

(a) a pregobbing apparatus having a furnace having a first temperature profile, the pregobbing apparatus adapted to provide a pre-optimized tip shape on the optical fiber preform, and

(b) a draw furnace having a second temperature profile which is substantially equal to the first temperature profile, the draw furnace adapted to draw optical fiber from the preform having the pre-optimized tip shape.

2. The system of Claim 1 wherein the pregobbing heating furnace includes an induction heater.

3. The system of Claim 1 wherein the pregobbing heating furnace and a draw apparatus utilized to draw fiber from the preform each include an induction heater.

4. The system of Claim 1 wherein the pregobbing furnace includes a temperature between about 1800 °C and 2000 °C.

5. The system of Claim 1 wherein the pregobbing furnace includes a temperature between about 1900 °C and 1950 °C.

6. The system of claim 1 wherein the pre-optimized tip shape includes a tip taper having a ratio of tip length to radius change over the tip length of between about 5 to about 12.

7. The system of claim 1 wherein the pre-optimized tip shape includes a tip taper having a ratio of tip length to radius change over the tip length of between about 6 to about 9.

8. A system for manufacturing an optical fiber preform, comprising:

a pregobbing furnace adapted to heat the optical fiber preform and cause a glass to be removed, the pregobbing furnace having a temperature profile that is substantially equal to a temperature profile of a draw furnace utilized in a subsequent process to draw fiber from the preform.

9. A system for manufacturing an optical fiber preform, comprising:

a pregobbing furnace adapted to heat the optical fiber preform and cause a glass to be removed to form a pre-optimized draw tip on the preform, the pregobbing furnace having a temperature profile substantially equal to a temperature profile of a separate draw furnace to draw fiber from the preform.

10. A method for manufacturing an optical fiber preform, comprising the steps of:

a) heating a consolidated optical fiber preform with an induction heating apparatus having a first temperature profile to allow a gob to drop under the influence of heat and gravity,

b) removing additional glass from the preform until a draw tip having a pre-optimized tip shape is formed, and

c) transferring the preform to a draw furnace of a draw apparatus.

~~11. The method of claim 10 further comprising exposing the preform to a second temperature profile within the draw furnace substantially identical to the first profile.~~

12. The method of claim 10 wherein the step of heating is accomplished by at least one induction heater surrounding the preform.

13. The method of claim 10 wherein the pre-optimized shape includes a tip taper having a ratio of tip length to radius change along the tip length of between about 5 to about 12.

14. The method of claim 10 wherein the pre-optimized shape includes a tip taper having a ratio of tip length to radius change along the tip length of between about 6 to about 9.

15. The system of Claim 10 wherein the induction heating apparatus includes a temperature between about 1800 °C and 2000 °C.

16. The system of Claim 10 wherein the induction heating apparatus includes a temperature between about 1900 °C and 1950 °C.

17. A method of making an optical fiber preform, comprising the steps of: prior to drawing optical fiber from the preform in a draw furnace, heating a tip of the prefom in a pregobbing heating furnace separate from the draw furnace to form a pre-optimized draw tip on the preform, and causing a temperature profile of the pregobbing furnace to be substantially equal to a temperature profile of the draw furnace.

18. The method of claim 17 wherein the pre-optimized draw tip includes a tip taper having a ratio of tip length to radius change along the tip length of between about 5 to about 12.

19. The method of claim 17 wherein the pre-optimized draw tip includes a tip taper having a ratio of tip length to radius change along the tip length of between about 6 to about 9.

20. A method for manufacturing an optical fiber, comprising the steps of:

heating a consolidated optical fiber preform within a pregobbing apparatus including an induction furnace having a first temperature profile to form pre-optimized shape preform tip, and

transferring the preform to a draw apparatus including an induction furnace and drawing optical fiber therefrom, the draw furnace having a second temperature profile substantially equal to the first temperature profile.

21. A method for manufacturing an optical fiber, comprising the steps of:

heating a plurality of consolidated optical fiber preform within a plurality of pregobbing apparatus, each apparatus including an induction furnace having a first temperature profile to form pre-optimized shape preform tip on each of the plurality of preforms, and

transferring the plurality of preforms to a plurality of draw apparatus, each including an induction furnace and drawing optical fiber therefrom, the plurality of draw furnaces each having a second temperature profile substantially equal to the first temperature profile.

22. The method of claim 21 wherein there are a lesser number of pregobbing apparatus than draw apparatus.

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